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H. C. Case, Editor, Mich.  
Ann Arbor, Mich.

# SIGMA XI QUARTERLY

Vol. VI

JUNE, 1918

No. 2



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Secretary.....	HENRY B. WARD University of Illinois, Urbana, Illinois
Treasurer.....	GEORGE B. PEGRAM Columbia University, New York City

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CLARENCE E. MCCLUNG.....	University of Pennsylvania, Philadelphia, Pa. <i>Term expires January, 1920</i>
F. E. KESTER.....	University of Kansas, Lawrence, Kansas <i>Term expires January, 1921</i>
F. K. RICHTMYER.....	Cornell University, Ithaca, N. Y. <i>Term expires January, 1922</i>
EDWARD ELLERY.....	Union College, Schenectady, N. Y. <i>Term expires January, 1923</i>

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*Gift  
Prof. E.C. Case  
5-9-22*

# SIGMA XI QUARTERLY

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## EDITORIAL COMMITTEE

Floyd Karker Richtmyer      Edwin Emery Slosson  
Henry Baldwin Ward

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VOL. VI

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## NOTICE

The attention of all active members is especially directed to the minutes of the Executive Committee printed in this number. Some questions of great importance for the whole organization have come to a preliminary decision. If these problems are to be decided wisely and effectively light must be thrown on all the various aspects they assume in different chapters and under different circumstances. That such aspects may become known to all chapters and members it is essential that the discussion be general and full. Members are urged to contribute material for publication in the Quarterly or for presentation without publication to the Executive Committee.

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## THE EDUCATION OF OUR MEMBERSHIP

One of the most serious problems that confronts our organization is the education of its full membership with regard to the ideals for which we are striving and the methods that ought to be employed to advance the aims of Sigma Xi. It is not enough that there should be in the society a little nucleus of ardent and enthusiastic research men who use the organization to impress upon the minds of the beginners that by the difficult and stony paths of research the worker advances to higher levels in his search after the truth which brings to the world greater comfort, prosperity, and happiness.

It is not at all strange that one often meets evidences of ignorance displayed in various fashion by those who wear the emblem of the organization. In fact, the record of our procedure, when carefully examined, demonstrates that little else could be expected. At the last meeting of the year a group of newly elected members is ushered into the presence of the local chapter and initiated into the organi-

zation. For seventy-five, if not ninety, per cent of these persons that is their only individual contact with the organization. They go through the formalities of the occasion, impressed most prominently by the honor which has been bestowed upon them. They hear the speech of the president exhorting them to tread the paths of research and then leave to take up duties in diverse fields few of which have any contact with an active chapter. It is little wonder, then, that they are governed largely by undergraduate opinions concerning the organization, its purpose, efficiency, and influence.

Even though we are wont to ask ourselves more frequently in what regard is Sigma Xi held by the leaders in research, is it not appropriate, rather, to inquire what is the general student opinion of the organization; for if this society is to be a power that shall stimulate investigation it must in some fashion mold undergraduate opinion in a way to impress upon it the research function for which first and last Sigma Xi should stand. In many cases one can predict with reasonable clearness what will be the real opinion of the average college student. The chapter holds a few meetings mostly if not always private; whether they be scientific or social, they do not touch the student body and often are not even noted in the student paper. More than once a graduate has said to me, "I never knew of the existence of such an organization before I graduated."

The war has furnished a rich opportunity for Sigma Xi to assume that position which naturally belongs to it and in which it can exercise a normal and powerful influence in the formation of college opinion. This opportunity is to be found, I believe, in the interpretation of scientific inventions and discoveries as applied to the prosecution of the war. Is there not here a chance for individual chapters to gain readily a wider influence in the undergraduate body, and is not the interpretation of research quite as likely to stimulate its pursuit by the man who is looking ahead uncertain of what future he will seek, and hence quite as important, as the encouragement of research among the few individuals who in one way or another have withstood the pressure to divert their energies into other channels and have started upon graduate study? One may readily ask if the future of such a movement might not be even greater than the election of a few undergraduate members to a body of which they are afterwards little more cognizant in detail than they were before the honor was thrust upon them. Certainly it is the duty of each chapter to consider carefully and definitely the question of the extension of its

influence and of a knowledge of its aims and their significance to the world, among the undergraduates in its own institution and in the colleges tributary to it where Sigma Xi does not exist. The war has done much to emphasize the need and the power of research; it remains for Sigma Xi to show the student in the formative period of life what an opportunity is offered to Companions in Zealous Research.

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## ASSOCIATE MEMBERSHIP EMBLEMS

Very favorable comments have come in from several chapters on the new associate membership pins. The design was worked out, as members will recall, under the direction of past president Charles S. Howe and recommended to the Pittsburgh convention by a committee that had been given the duty of investigating the matter. It is believed also that the business method of handling the pins will commend itself to all on trial. It keeps the emblem absolutely within the Society, holds its type uniform indefinitely and assures the purchase by those entitled to it at a price lower than could be attained on any other basis. Any suggestions on the handling of the matter which will add to the convenience of chapter secretaries and fall within the instructions of the general convention will be welcomed by the secretary to whose office has been assigned the duty of distributing the pins. Order blanks have been prepared in accordance with the instructions of the Executive Committee and sent to the Recording Secretary of each chapter, as he seems to be the officer most prominently concerned.

## EXECUTIVE COMMITTEE MEETING

On April 17, 1918, President Stieglitz sent the following notice to the members of the Executive Committee:

"From recent correspondence it appears that the members of the Executive Committee on the whole would prefer to meet in Chicago on Friday, May 10, and in agreement with this choice I hereby call a meeting of the Committee for that day at 9:30 A. M. at the Quadrangle Club, Corner of 58th St. and University Avenue.

Arrangements will be made to have the committee take lunch and dinner together at the Quadrangle Club. Judging by previous experience we probably will finish our work in a one day session. The members are cordially invited to suggest topics for consideration by the Executive Committee."

In accordance with this notice, the Executive Committee convened at 9:30 Friday morning, May 10, in the Quadrangle Club of the University of Chicago. The members in attendance were: President Stieglitz in the chair, Messrs. Eigenmann, Ellery, McClung, Richtmyer, and Ward.

The first item of business was the consideration of matters referred to the Committee by the Pittsburgh Convention. The contract for associate membership pins, which had been prepared by the Secretary in accordance with the instruction of the Convention, was discussed and approved. The Executive Committee then, on motion, instructed the Secretary, in carrying out the orders of the Convention, to ship to chapters only pins specifically engraved for the individual, and to make such shipment in accordance with instructions received from the chapter secretary, but only on full prepayment of charges. The contract price for each emblem, to which had to be added the war tax levied by the Government and transportation charges, brought the cost for each pin up to \$2.15, which sum was duly approved as the amount to be paid by the chapter secretary for each pin ordered. The Committee appointed Messrs. Richtmyer and Ward to take charge of arranging the details of the contract, with power to act. The Secretary was further instructed to prepare printed labels for shipment of pins and printed order blanks containing specifications for distribution to chapter secretaries and use in sending orders for these emblems.



The question of chapter organization was brought up for discussion, with especial reference to the origin of some misunderstandings and difficulties or confusion incident to methods heretofore followed. Emphasis was laid upon the fact that this situation could often be traced to the fact that the chapters attempt to work through two secretaries, and that the notices sent out by the national Secretary, in accordance with custom, to the corresponding secretary of each chapter never came to the attention of the recording secretary who is the real working force of the local organization. It was decided to call the attention of chapters conspicuously to the recommendation of the Executive Committee made at the Chicago meeting, May 4, 1917, that the office of corresponding secretary be eliminated in chapters as it already has been in the national organization (see *QUARTERLY* vol. V, p. 88).

The following communication was presented from the Washington University Chapter at St. Louis:

"According to the constitution of the society of Sigma Xi, there may be elected as a non-resident member of an active chapter any professor, instructor, or investigator connected with a neighboring educational, scientific, or professional institution not having a chapter, who otherwise would be eligible for active membership. I wish to know if the director of a scientific state bureau, with no official connection with any educational institution, would come within this classification, provided, of course, that the man has met the requirements as an investigator."

After discussion, the following minute was adopted:

The Executive Committee has been asked to interpret Article III, section 4 (b) of the Constitution, reading

"As a non-resident member, any professor, instructor or investigator connected with a neighboring educational, scientific or professional institution not having a chapter, who would otherwise be eligible for active membership."

Subject to the correction of the Convention, the Executive Committee interprets "neighboring educational scientific or professional institution" to include scientific state or national bureaus or research laboratories of industrial concerns having organized research departments which contribute to the sum of scientific knowledge. Laboratories which do not publish any of their results are not included in this interpretation.

As an explanation of the term "who would otherwise be eligible for active membership," the Executive Committee desires to emphasize the statement of the Constitution concerning professors or instructors eligible to membership. The constitution states that "a professor or instructor who has shown noteworthy achievement as an original investigator in some branch of pure or applied science" is eligible to membership. Attention is called to the fact that this limitation ought to obtain clearly for members of the "neighboring" institution mentioned above. As reported to the Convention of the Society in 1916 (see SIGMA XI QUARTERLY, March, 1917, p. 26) "in the election of faculty and non-resident members, emphasis should be laid in fact, as it is in form, upon the words 'noteworthy' in the phrase 'noteworthy achievement' and 'original' in the phrase 'as an original investigator.'"

Attention was also called to a statement in the Quarterly of March 1917, page 3 "that *routine* construction or publication of *routine* work does not meet the spirit of the Constitution."

The Executive Committee recommends that Art. III, sec. 4 (b) of the constitution be amended by omitting the words "as a non-resident member" so as to read; (b) "any professor, instructor or investigator, connected with a neighboring educational, scientific, or professional institution not having a chapter, who would otherwise be eligible for active membership." Under the terms of the Constitution, these men are already active members and the term "non-resident" is a superfluous designation.

The Executive Committee also recommends that Art. III, sec. 4 of the Constitution be further amended by adding at the end, (e) "alumni members of any chapter resident in the vicinity of an institution who may apply to the chapter for the assumption of active membership."

The discussion with regard to the various phases of membership led to the clear conviction that our present regulations were confused and uncertain by virtue of the use of different terms for the same kind of membership, and similar terms for different types. It was accordingly voted to request ex-president Howe to recast the terminology, and in connection with the President and Secretary to prepare material for submission to the next convention, making such changes as will render the intent of the Society clear.

The Executive Committee voted to instruct the Secretary to report for its consideration any and all cases of elections to mem-



bership in which the specific provisions of the Constitution were not definitely complied with.

The following communication was presented from a chapter with a request that the Executive Committee consider the questions and take such action as seemed appropriate, publishing the same for the information of chapters and members:

- (1) Professor A, a member of a chapter at another institution, becomes affiliated with this chapter, pays dues for a few years and then withdraws from the chapter, altho continuing in the same academic capacity.
- (2) Professor B is elected by this chapter as a faculty member. He also pays dues for several years, and then withdraws, altho like A he remains with the University.
- (3) Mr. C is elected from the student body at the end of his senior year. The next fall he enters another department of the University where he is listed as an undergraduate.

What is the status of each in the chapter and in the Society of the Sigma Xi?

Members of the Executive Committee commented definitely upon the fact that such instances as (1) and (2) are clearly opposed to the letter and spirit of the Constitution. That document at its outset makes the organization a society of Companions in Zealous Research, and calls upon members for efficient participation. Furthermore, the pledge taken by every person assuming membership in the organization, but that specific refusal to participate indicated a different Society of the Sigma Xi and assume the responsibilities incumbent upon active (or associate) membership therein," and consequently an attitude of indifference is a direct and specific repudiation of the pledge that has been taken.

The discussion brought out the fact that any neglect to comply with full responsibilities constitutes an unfortunate evidence of failure to appreciate the privileges and responsibilities of the organization, but that specific refusal to participate indicated a different and still more unfortunate attitude. Hence, the spirit of the individual was all-important in deciding the particular case. Since the home chapter was cognizant of conditions, it should and must vote on the case in the light of its knowledge, and such action should, in the interests of the chapter no less than of the entire organization, be taken with a full sense of the responsibilities in the case.

On specific motion the Executive Committee voted that in case 2 cited above, the person described should be considered to have severed his connection with organization on the basis of having broken his membership pledge. The Executive Committee further voted to request chapter secretaries to send specific information in such cases for entry on the records of the society.

In case 1 the circumstances were held to agree substantially with those under case 2, and on motion the same action was taken.

In case 3 the Executive Committee was of the opinion that any such individual clearly continued his membership in the organization and did not suffer any change of relation by moving from one department to another. This ruling was, on motion, approved by unanimous vote.

In connection with this discussion, the Secretary was instructed to call the attention of chapters to the importance of seeing that all newly elected members actually sign the pledge which is required by the Constitution to complete their membership, and that no persons be recognized as members, or reported as such, or granted the privilege of wearing the badge of the Society, or any other rights of members, until this condition has been complied with.

A letter was read from the Secretary of the American Association for the Advancement of Science indicating the outlook for a meeting of that Association in Baltimore, December 27-31, 1918, at Johns Hopkins University. The letter read in part as follows:

"Because of the very large number of prominent scientific men from all parts of the country being now in Washington engaged in war work, and for other reasons that will probably occur to you, the Committee recently decided to hold the meeting in Baltimore instead of Boston. \* \* \* It is planned to make the meeting a limited one—limited, however, only in the sense of restricting the program very largely to definite working problems related to the war."

After discussion it was unanimously voted that if the meeting of the American Association for the Advancement of Science becomes a working meeting in the neighborhood of Washington, having for its object cooperation with the Government and the more perfect organization of scientific men to assist in the prosecution of the war, under these conditions the Executive Committee will favor a meeting of the Sigma Xi Society at the same place and for the same purpose. Various members of the Committee expressed their strong conviction

tions as to the importance of maintaining the scientific work of the country and of training a maximum number of men for those expert services which are necessary if the Government is to prosecute effectively the war in which it has engaged.

The Secretary was requested to give especial attention in the autumn number of the *QUARTERLY* to the advantages of associate membership and to a statement of the extent to which it had been adopted in various chapters.

The Executive Committee then adjourned for lunch and reassembled at two o'clock to continue the business in hand.

The matter of charters at certain institutions was then taken up and discussed at length. In accordance with custom this discussion is not published.

The question was submitted for the consideration of the Executive Committee as to whether in institutions having departments in different geographical locations, the members of the Society in one locality can be an integral part of the active organization on the main campus. It was voted that wherever such an outlying college, school, or station is in reality an integral part of the institution and under the full control of the governing body thereof, any person connected with it, even though not on the central campus of the institution may retain or acquire active membership in the chapter with all the rights and privileges connected therewith.

The question of Sigma Xi fellowships was discussed at considerable length. It was decided that there should be organized under the direction of the President an advisory Alumni Committee, and certain names were suggested for membership on that committee. The President was given the power to organize this work.

Some other matters of more informal character were discussed without action being taken. Before adjourning, however, the Committee voted its thanks to the Quadrangle Club of the University of Chicago and to President Stieglitz for the privileges accorded members in connection with the meeting.

Thereafter the Committee adjourned, subject to the call of the President.

HENRY B. WARD, *Secretary*

## CHAPTER REPORTS

### THE MISSOURI CHAPTER

The chapter has reason to feel that the year 1917-18 was fully up to the standard set by former years in the character of the scientific meetings held and the interest manifested by the members in the welfare and success of Sigma Xi. Eleven meetings were held during the year, seven of which were scientific. It was the policy of the Executive Committee to have the Society meet at least once a month during the year, and this policy was adhered to with marked success in spite of the fact that there were only sixty-three active members on the chapter roll against seventy-seven for the previous year and also in spite of the shortage of fuel which greatly interfered with many of the usual activities of the University during the winter months.

The annual circuit lectures for the year, in which the University of Kansas Chapter cooperates, were given in November, 1917, by Professor Frederick H. Newell of the University of Illinois. A public lecture on The Government Aids in Feeding the Nation was delivered by Professor Newell on November 14 and the technical lecture before the Society on Cooperation Among Engineers, on November 15.

Two scientific meetings of the Society were held during the year at which papers were presented by members of the chapter. On December 12, 1917, the following papers were read:

Some Recent Investigations in Wave Functions, by O. D. Kellogg, Professor of Mathematics

The Composition of Missouri Soil in Its Relation to Productivity, by M. F. Miller, Professor of Soils

The Tungsten Deposits of Missouri, by W. A. Tarr, Assistant Professor of Geology

The Geologic History of Missouri, by E. B. Branson, Professor of Geology.

Papers presented at the meeting on March 12, 1918, were as follows:

Human Nutrition Under War Conditions, by Chas. W. Greene, Professor of Physiology

Architecture of Caddisfly Cases, by G. S. Dodds, Assistant Professor of Zoology

Studies on the Growth of Various Animal Tissues, by Eliot R. Clark, Professor of Anatomy.

Dr. Martin H. Fischer, Professor of Physiology in the University of Cincinnati, visited the University in May on invitation of the chapter and delivered a series of three lectures under the auspices of the Society. The first, a public lecture on May 15, was entitled, The General Physiology of Water Absorption in the Living Organism. The second lecture, on May 16, was entitled Principles of Treatment in Nephritis. On the evening of May 16 the annual initiation of the chapter was held, following which Dr. Fischer delivered an illustrated lecture before the members on Emulsion Chemistry and Some of Its Applications. He also spoke informally to the newly initiated members regarding the ideals and privileges of membership in Sigma Xi.

At a meeting held March 12 the following were elected to associate membership:

Miss Hope Hibbard and Miss Mary Jane Guthrie, presented by the departments of zoology and entomology.

John Isaac Appleby, presented by the departments of anatomy and pathology.

Charles Robert Halley, Jr., presented by the departments of zoology and geology.

The active members elected at the annual meeting on April 23, 1918, and the basis of the election in each case, were as follows:

#### FROM NON-RESIDENT GRADUATES

LESLIE H. COOLEGE, B.S. South Dakota A. and M. College; A.M., U. of Mo., 1912. *Associate in Bacteriology, Michigan Agricultural College.*

Agglutination Test as a Means of Studying the Presence of Bacterium abortus in Milk. *Journal of Agricultural Research*, 5:871-5, 1916. A Study of the Presence of Bacterium abortus (Bang) in Milk. *Technical Bulletin* 33, Michigan Agr. Exp. Sta., 37 pp., 1916. Is Bacterium abortus (Bang) Pathogenic for Human Beings? *Journal of Medical Research*, 34:457-67, 1916. Facts Disclosed in a Study of the Presence of Bact. abortus (Bang) in Milk by Means of the Agglutination Test. *Journal of Medical Research*, 37:207-14, 1917.

#### FROM THE GRADUATE SCHOOL

GEORGE ORCHAY SHINJI, B.S., M.S.

*Entomology*

Embryology of Coccids with Special Reference to the Origin and Formation of Ovary, Nervous System and Mid-Intestine. Thesis for Ph.D.



- MARY JANE GUTHRIE, A.B. *Zoology*  
The Growth Stages in the Spermatogenesis of *Anax junius*. Thesis for A.M.
- HOPE HIBBARD, A.B. *Zoology*  
The Spermatogenesis of *Ascaris habena*. Thesis for A.M.
- ARTHUR LOWELL DAVIS, A.B. *Chemistry*  
The Atomic Weight of Lead from Samarskite. Thesis for A.M.
- LEWIS JOHN STADLER, B.S. in Agr. *Farm Crops*  
The Associated Growth of Legumes with Non-Legumes. Thesis for A.M.
- JOHN ISAAC APPLEBY, A.B. *Anatomy*  
The Description of the Arterial System of a Twenty Millimeter Pig Embryo. Thesis for A.M.

LEROEY S. PALMER, *Secretary*.

#### THE CHICAGO CHAPTER

During the past year the chapter has had at its meetings the following speakers:

Professor H. Gideon Wells on Observations on Medical Work in Asia, Russia, and Roumania during the war.

Professor John F. Hayford, Director of the College of Engineering at Northwestern University, on The Contribution of Science to Aviation.

Mr. Frank W. De Wolf, State Geologist of Illinois, on Review of the Work of Geologists in connection with the War.

The initiates for the year and the basis for the election of each person chosen are given below.

#### ELECTED, FEBRUARY 21, 1918

- IRENE CASE *Psychology*  
Suggestibility of Mental Defectives
- HELEN ASHHURST CHOATE *Botany*  
Origin and Development of the Binomial System of Nomenclature; The Earliest Glossary of Botanical Terms
- MERLE CROWE COULTER *Botany*  
Inheritance studies in Corn, Coleus, Amaranthus; Experimental Morphology on *Olothrix*
- JAMES ELIAS CRIBBS *Botany*  
A Columella in *Marchantia polymorpha*; Plant Association of Western Pennsylvania



- HOWARD BENJAMIN CROSS *Zoology*  
Vertical Migration of Insects; Regulation in *Planaria maculata*
- JOHN EVERETT GORDON *Hygiene & Bacteriology*  
A Preliminary Report on the Fat and Bacterial Content of Ice Cream
- ELVAH HARLEY GRAFTON *Chemistry*  
Research: Solvents; cured rubber. Now working on the adsorption of benzene derivatives on a water surface
- GEORGE T. HARRINGTON *Botany*  
The grass and clover seed trade in Vermont, 1909; The agricultural value of impermeable seeds; Hard clover seeds and the influence of the huller
- HOMER HENRY HELMICK *Chemistry*  
Radioactivity Problems
- HENRY ALBERT JONES *Botany*  
Structure of corn plants in Nebraska; Loss of viability in soft maple
- HARRY MATTHEW JONES *Bacteriology*  
Protein Sparing Action of Carbohydrates; Bacteriological and Chemical Evidence of the presence of a Hexose Sugar in Normal Milk; Effect of X-Rays on Phagocytic Action; Effect of Benzol Injection on Phagocytic Action; An Anaerobic Method for Plating
- MORRIS KHARASCH *Chemistry*  
Colors of the Second Order; Dyestuffs for Chemotherapy
- HERBERT HIRAM KING *Chemistry*  
Vapors produced by drying paint films; Bulletin on Paint Oils and Paint Pigments; Now working on the adsorption of long molecules
- EMMA ANNA KOHMAN *Physiology*  
Effect of cooking on the Nutritive Properties of Vegetables
- ERNEST PRESTON LANE *Mathematics*  
Conjugate Systems with Indeterminate Axis Curves
- JOHN VINCENT LAWRENCE *Physiological Chemistry*  
The Osmotic Concentration of the Sap of the Leaves of Mangrove Trees; The Cryoscopic Constants of Expressed Vegetable Saps as related to Local Environmental Conditions in the Arizona Deserts; Studies on the Physiology of Reproduction in Birds
- GLADYS LEAVELL *Chemistry*  
(Ph.D. candidate in Organic Chemistry; published master's thesis with Dr. Raiford)
- ABRAHAM LEVINSON *Medicine*  
Studies in the Schick Diphtheria Reaction; The Permanganate Test for Spinal Fluid; Physical Characteristics of Spinal Fluid in Various Diseases; Coeditor with Abt of a Pediatric Year book, 1916-1917; Alkaloidal and Metal Precipitations of Cerebrospinal Fluid in Diagnosis of Meningitis

- FRIEDRICH WILHELM MANFRED LOMMEN *Chemistry*  
(Ph.D. work being done under Professor Piccard)
- ERNEST FREDERICK MAHR *Zoology*  
Glands of Internal Secretions in Amphibian Larvae
- CHARLES H. MILLIGAN *Organic Chemistry*  
At present engaged in the preparation of optically active hydrazines
- DAVID McLAREN *Chemistry*  
Saponification of esters
- HENRY MAX McLAUGHLIN *Chemistry*  
Adsorption of organic substances at the interface between two liquids
- STEPHEN POPOFF *Chemistry*  
(Has completed some research on a government problem and has made progress on his Ph.D. research on the subject of manganates)
- HENRY JOHN ROSSBACHER *Chemistry*  
Research on Preparation of Picric Acid
- HOWARD MARTIN SHEAFF *Physiological Chemistry*  
A Quantitative Method for the Estimation of Small Amounts of Gaseous Oxygen
- YOSHITAKA SHIMIDZU *Zoology*  
(Considerable number of publications)
- GERALD LOUIS WENDT *Chemistry*  
On Active Hydrogen; The Constants of Radioactivity; Chemical Significance of Radium
- ROY ARTHUR WILSON *Geology*  
Geology and Coal Deposits of the Bull Mtn. Coal Field, Montana;  
Geology and Economic Deposits of a portion of Eastern Montana;  
Geology and Coal Deposits of the Trail Creek and Electric Coal Fields, Montana
- MARGARET WOOSTER *Psychology*  
Studies in Space Perception
- ELECTED MARCH 14, 1918
- EDWARD STOWE AKELEY *Physics*  
Photo Electric Effect of Na and K in High Vacua
- CHARLES WASHINGTON CULPEPPER *Botany*  
Some Effects of the black-rot fungus upon the chemical composition of the apple; Physiology of the development of velvet bean
- SCOTT VERNE EATON *Botany*  
Absorption of water by carbohydrate gels
- ANGELINE SMITH FREEMAN *Psychology*  
(Research, Master's thesis)

- ANNETTE HOWELL *Psychology*  
(Research, Master's thesis)
- WARD L. MILLER *Botany*  
Origin of the Polyxylic Steele in Cycas
- HAROLD HORTON SHELDON *Physics*  
Doing independent work on study on Indices of Refraction of Gases
- WEBSTER GODMAN SIMON *Mathematics*  
A formula of polynomial interpolation.  
On the solution of certain types of linear differential equations in infinitely many variables
- MATSUJIRO TAKENOUCHI *Bacteriology*  
Assistant Professor of Bacteriology, Imperial University, Japan
- HARRY CAMPBELL THOMPSON *Physics*  
(Working on problems of relative adsorption of He, Ne, CH<sub>4</sub>, and N<sub>2</sub> by charcoal; War Service)
- ROGER JOHN WILLIAMS *Chemistry*  
(Research with Dr. Glattfeld in Organic Chemistry)

## ELECTED APRIL 18, 1918

- RAY EDWIN HALL *Physics*  
Research work on Radio-Reception and Rapid Recording and Elimination of Interference.  
Holder of several patents. Inventor of Pulmotor valve
- MATTIE CRUMPTON HARDY *Psychology*  
Perception of Relative Motion
- EDWARD CHARLES MASON *Physiological Chemistry*  
Studies in Protein Coagulations
- FREDERICK WILLIAM MULSOW *Hygiene & Bacteriology*  
Studies on Certain Fowl Diseases

The following undergraduates have been elected to Associate Membership

## FEBRUARY 21, 1918

CHARLES HENRY BEHRE, JR.  
MARTIN CHARLES EDWARD HANKE  
THEODORE AUGUST LINK  
EDWARD JULIUS STIEGLITZ  
CHESTER KEELER WENTWORTH

APRIL 18, 1918

EDWARD BLANKENSTEIN

MARION G. FRANK

RALPH WALDO GERARD

ARNO B. LUCKHARDT, *Secretary*

## THE SYRACUSE CHAPTER

During the year the Syracuse Chapter has carried on its work with success with the enthusiastic cooperation of the members. A total of ten meetings have been held and the scientific program for these meetings is noted below. The policy started a number of years ago by the Chapter to have a number of public meetings addressed by prominent men, both from our membership and from outside, in order to bring to the students and general public some notice of the Society and its work and especially to present addresses on timely and interesting scientific problems has been continued. These meetings have been well attended, the audience averaging over a hundred, and some of the addresses drawing large crowds. Such a policy seems to have considerable merit and accomplishes its chief purpose. The Chapter has found, however, that it must be followed with caution in order not to draw attention of the members away from the chief work of the Chapter, viz. the stimulation of research among the members.

At the business meetings the chief items of general interest have been the abolishing of the office of Corresponding Secretary, as suggested by the Executive Committee of the general society, a single secretary performing all the duties hitherto distributed over two secretaries. Second, the Chapter gave careful attention to the matter of Associate Membership and voted not to introduce this class of members into its roll. The Chapter discussed the matter of the continuance of the QUARTERLY and instructed its delegates to the convention to vote for its continuance with any changes which the wisdom of the officers of the Society and the editors of the QUARTERLY might suggest.

The following is a summary of the programs for the year:

October 12. Frank Collins Baker of the N. Y. State College of Forestry, Oneida Lake Fish Food and Parasites. Leigh H. Pennington of the N. Y. State College of Forestry, Fighting the White Pine Blister Rust.

November 13. Royal A. Porter of the Physics Department, Some Recent Work on the Effect of Interior Illumination on the Eye. O. W. H. Mitchell of the College of Medicine, Diagnosis and Serum Treatment of Lobar Pneumonia.

December 7. Public meeting addressed by Edmund Otis Hovey of the American Museum of Natural History. Dr. Hovey lectured on Two Years in the Far North, this being an account of his experiences on the relief of the Crocker Land Expedition.

January 11. Public meeting addressed by W. L. Bray, Dean of the Graduate School, on The Service of Botany to the Nation During and After the War.

March 15. Henry N. Jones of the Department of Bacteriology, Notes on Some Communicable Diseases of Domestic Animals. Loren C. Petry of the Department of Botany, An Area of Adirondack Vegetation in the Syracuse Region.

April 5. Public meeting at which Professor Robert F. Griggs of Ohio State University lectured on Mt. Katmai and the Valley of Ten Thousand Smokes, giving an account of his work on the expedition of the National Geographic Society to Mt. Katmai, Alaska.

April 19. Public meeting at which John Henry Comstock, Emeritus Professor of Entomology of Cornell University, gave a lecture on The Habits of Spiders. This lecture initiated an exchange lectureship between the Syracuse and Cornell Chapters, Professor C. H. Richardson of Syracuse lecturing before the Cornell Chapter, April 20, on Coal Mining with a Camera.

May 10. W. M. Smallwood of the Department of Zoology, The Problem of Starvation in Animals. Geo. T. Hargitt of the Department of Zoology, The Study of Germ Cells.

The following additions have been made to the Chapter during the year:

#### AFFILIATIONS

WM. A. GRUSE, A.B., A.M., Ph.D. (Wisconsin) *Assistant Professor Forest Chemistry, N. Y. State College Forestry.*

Affiliated from Wisconsin chapter

ALFRED H. W. POVAH, A.B., Ph.D. (Michigan) *Assistant Professor Forest Botany, N. Y. State College of Forestry.*

Affiliated from Michigan Chapter.

C. F. CURTIS RILEY, A.B. (Doane), B.S. (Michigan), M.S. (Illinois). *Special Lecturer in Animal Behavior, N. Y. State College of Forestry.*

Affiliated from Illinois Chapter.

## ELECTED FROM GRADUATE STUDENTS

DON M. BENEDICT, Pd.B. (Mich. 1911), B.S. (Mich. 1917)  
*Laboratory Assistant in Forest Botany*

## Forest Pathology

JOHN JOSEPH HOPFIELD, A.B. 1917      *Teaching Fellow in Physics*

## Absorption Spectra of Indicators

DOROTHEA L. KEENEY, A.B. 1917      *Graduate Assistant in Botany*  
 The Influence of Nutrition and Other Physiological Factors Upon Reproduction in Sporodinia

MAY WILSON LOVELAND, A.B. 1914      *Graduate Assistant in Zoology*  
 The Formation of the Operculum and Spiracle in the Larvae of Amphibia

FRED WEMPLE MARTIN, B.S. in Forestry (N. Y. State College of Forestry 1915).      *Graduate Assistant in Botany*  
 Seed Treatment for the Prevention of Bean Anthracnose

HARRY SIDNEY PIZER, B.S. 1917      *Teaching Fellow in Zoology*  
 The Anatomy and Histology of Sphaerium

(MRS.) ELSIE GIBSON WHITNEY, A.B. 1917      *Teaching Fellow in Botany*

A Botanical Study of Certain Peat Deposits in Onondaga county, N. Y.

TSAO-SHING YANG, B.S. in E.E. (Illinois 1917)      *Mathematics*

The following members of the Syracuse Chapter mostly active members, are in service as indicated. The data given is that last available and in some cases the present address is not known since the addresses change and some whose location was known are at present at other points and I have not been able to get data on the change.

HUGH P. BAKER      *Dean, N. Y. State College of Forestry*  
 Captain of Infantry

REGINALD S. BOEHNER,      *Professor of Chemistry*  
 Doing Chemical Investigation for Government

NELSON C. BROWN      *Professor of Forest Utilization, N. Y. State College of Forestry.*  
 Engaged in Forestry work

WM. A. GRUSE      *Assistant Professor Forest Chemistry, N. Y. State College of Forestry.*  
 1st Lieut. Gas Defense

ERNEST C. KEENAN      *Professor of Applied Mathematics*  
 Ensign U. S. Navy, engaged in Naval recruiting



ALEXANDER J. MACNAB

1st Lieut. Infantry

FRED W. MARTIN

Signal Corps

*Graduate Assistant in Botany*

VASIL OBRESHKOVE

Medical Corps, Neuro-Surgical Unit, Washington, D. C.

HARRY S. PIZER

*Teaching Fellow in Zoology*

Medical Corps, Neuro-Surgical Unit, Washington, D. C.

A. CLEMENT SILVERMAN

Medical Corps

*Instructor in Physiology*

JAMES R. SLATER

Lieut. Infantry

HARRY H. STAGE

U. S. Navy, Hospital Corps

EDWIN S. VANDEUSEN

1st Lieut. Infantry

GEO. T. HARGITT, *Secretary*

#### ILLINOIS CHAPTER

The Illinois Chapter closes a successful year with the list of members and associate members given below elected during the year. The total active membership has been close to 200. Provisions were made for the election of associate members, chiefly from undergraduates, to be chosen in the fall so that they might have the benefit of attendance at the meetings. No other business of general interest was transacted. The average attendance at the meetings was about 60. The programs were as follows:

October Dr. G. D. Beal, Antiseptics and antitoxins in the war  
 Professor Roger Adams, Organic Chemicals  
 Professor W. A. Noyes, Nitrates and Ammonia  
 Professor E. W. Washburn, Optical Glass

November W. Elmer Ekblaw, Scientific Research in the Far North

December Professor Frank Smith, Recent Results from the Study of Annelida

January Professor J. A. Detlefsen, On Fluctuations of Sampling in a Mendelian Population.

February Professor Eliot Blackwelder, The Development of Mountain Structure in North America

March Professor F. L. Stevens, Plant Pathology in War Times

April Professor Ruth Wheeler, Research in Household Science

May Professor H. S. Grindley, Address to the Initiates

The list of elections in various classes is given with the basis for election in each case.

#### ACTIVE MEMBERS FROM THE FACULTY

- ROGER ADAMS, A.B., A.M., Ph.D. *Chemistry*  
 Phenyl esters of oxalic acid Jour. Amer. Chem. Soc., 37 (1915), 2716  
 Oxalylchloride or primary, secondary, and tertiary alcohols. J. A. C. S., 38 (1916), 2514  
 Gignard reagent on CN compounds. Jour. Amer. Chem. Soc., 38 (1916), 2768
- JAMES D. BREW, B.S. *Dairy Husbandry*  
 New York Agr. Exp. St. Bull. 363, 373, 398, 439, 443. Tech. Bull. 49
- CHARLES ALTON ELLIS, A.B. *Structural Engineering*  
 New formulas and diagrams for deflection of beams under any loading. Eng. Record, Jan. 15, p. 84  
 Graphical calculus and special reference to shear, moment, and deflection diagrams. Jour. Western Soc. Eng., April 1917, p. 189
- ROBERT GRAHAM, D.V.M., B.S. in Agr. *Veterinary Science*  
 Sanitary measures to prevent hog cholera. Illinois Bull., July 21, 1917  
 The serum treatment for hog cholera. Illinois Bull., Sep. 21, 1917  
 Necrobacillosis in swine. Illinois Bull., Mar. 20, 1918  
 Studies in forage poisoning. Kentucky Bull., June, July, 1917  
 (Also other papers)
- C. STANLEY SALE, A.B., B.S. in C. E. *Civil Engineering*  
 Chapters in the Chicago Association of Commerce report on smoke abatement and electrification. Circular 4, Eng. Experiment station. (Also other papers.)

#### FROM GRADUATE STUDENTS

- JAY THOMAS FORD, A.S., M.S. *Chemistry*  
 A study of acid-resisting alloys
- FLORENCE SANDER HAGUE, A.B., M.A. *Zoology*  
 Numerical relation of spermatozoa to Certoli cells. Kan. Univ. Sci. Bull. 9, No. 11. Iodine as a parthenogenetic agent. Biol. Bull., 33:355
- JOHN FREDERICK GROSS HICKS, B.S., M.S. *Chemistry*  
 The preparation and properties of Yttrium mixed metal
- FORREST ELLWOOD KEMPTON, B.S. *Botany*  
 The origin and development of the Pycnidium

- LUTHER EUGENE KENNEDY, A.B., A.M. *Geology*  
Cacaquabic granite and porphyry and their contact effects
- ALBERT WAFFLE OWENS, S.B., M.S. *Chemistry*  
Purification and atomic weight of Samarium.
- WILLIAM EUGENE PICKLER, A.B. *Botany*  
The effect of temperature and water control on the diastase in the barley grain
- EDWIN ARTHUR REES, B.A., M.A. *Chemistry*  
Heterogeneous equilibria between aqueous and metallic solutions: a study of the ionization relations of potassium and strontium chlorides in mixtures
- RALPH EMERSON RIDNFUSZ, A.B., A.M. *Chemistry*  
Cyclic ethers from O-allyl phenols. Colloidal arsenates and phosphates of iron. Washing precipitates for peptization
- FLOYD ELBA ROWLAND, B.S., A.B., M.A. *Chemistry*  
The effect of temperature, pruxsure, and steam on hydrocarbon vapors
- SENTARO SEKINE, A.B., Ph.D. *Railway Engineering*  
A study of the dynamics of train-motion with special reference to the theory and application of speed-time, distance-time, and speed-distance curves
- BURNS OSCAR SEVERSON, B.S., M.S. *Animal Husbandry*  
Color inheritance in swine. *Jour. of Heredity*, (1917) 8:379  
A statistical study on body weights, gains, and measurements of steers during the fattening period. *Jour. Agr. Research*, 1917, p. 383. (Other papers)
- MERLIN GRANT SMITH, A.B., A.M. *Mathematics*  
On the zeros of functions defined by homogeneous linear differential equations containing one parameter
- TERENCE ONAS WESTHAFFER, A.B., M.S. *Chemistry*  
A study of certain Illinois shales

## FROM UNDERGRADUATES

- ZILPHA CURTIS BATTEY, A.B. *Household Science*  
The utilization of calcium in rye
- JESSE ROY CHRISTIE, B.S. *Zoology*  
Two nematode parasites of *Passalus cornutus*
- LLOYD BLACKWELL DICKEY, A.B., A.M. *Zoology*  
A new amphibian cestode
- BERTHA LANGWILL, B.S. *Zoology*  
An Illinois case of filariasis
- CARL SHIPP MARVEL, B.A., A.M. *Chemistry*  
Derivatives of cyclopentanone. *Jour. Amer. Chem. Soc.*, (1917) 39:1267  
The rate of turbidity in beverages containing maltose, glucose, or maltose and glucose. *Jour. Amer. Chem. Soc.*, (1917) 39:156

- DANIEL PAUL QUIRING, A.B. *Zoology*  
The development of the ear of *Acanthias*
- LESTER CARLTON VERNOOY, A.B. *Zoology*  
The early development of the brain of *Acanthias*
- LANSING SADLER WELLS, A.B., A.M. *Chemistry*  
Copper in the flora of a copper-tailing region. *Jour. Amer. Chem. Soc.*, (1917) 39:811 An analytical study of flue and baghouse dusts from a certain smelting plant
- LEONARD FRANCIS YNTEMA, A.B., A.M. *Chemistry*  
Separation of Holmium
- RACHIRO YUASA, B.S., M.S. *Entomology*  
The anatomy of the head and mouth parts of the generalised biting insects
- THEODORE HENRY FRISON *Entomology*  
Notes on Bombidae and on the life history of *Bombus auricomus* Robt. Additional notes on the life history of *Bombus auricomus* Robt. Note on the habits of *Psythirus variabilis* Cress. Biological studies on the Brevidae of Illinois
- ALEXANDER MCJUNKEN TOWER *Railway Engineering*  
Design, construction and test for a direct reading engine indicator
- EARLE JEROME GRIMES *Agronomy*  
Soil study of Warren County, Indiana, Stadk County, Indiana; junior author of four other county surveys; Reconnaissance survey of northern Indiana. Additions to Indiana Flora. The relation of soil type to variability in oats
- ELMER BENNETT VLIET *Chemistry*  
Factors upon which a classification of coals may be based

## ASSOCIATE MEMBERS

- WILLARD EDWIN BULL *Electrical Engineering*  
Comparative methods of testing induction motors
- EARLE WESLEY CARRIER *Civil Engineering*  
Reactions and stresses in statically indeterminate structures
- JACOB HOWARD EUSTON *Electrical Engineering*  
Comparison of the operating characteristics of constant current transformers
- ROSCOE HARLAN GERKE *Chemistry*  
Cyclic ethers from ortho-allyl phenols
- ERNEST WILLIAM GUERNSEY *Chemistry*  
Extraction of pure helium in quantity
- GLENN KOEHLER *Electrical Engineering*  
Construction of a high power radio set
- NORMAN WILLIAM KRASE *Chemistry*  
Aluminum zinc alloys

## CHAPTER REPORTS

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CLAUDE LEIST	<i>Zoology</i>
BERYL FRANKLIN LOVE	<i>Physics</i>
HELEN ANASTASIA MCGINNIS	<i>Botany</i>
The contrast between climax and seral types of vegetation	
ALBERT OTTO MATTHEWS	<i>Chemistry</i>
Improvements in the synthesis of anesthetics	
HAROLD LOEFFEL OLESEN	<i>Electrical Engineering</i>
Comparative methods of testing induction motors	
CARL ELI PIKE	<i>Physics</i>
Amplification of the photoelectric current by means of the audion	
WALTER FRED STRAUB	<i>Chemistry</i>
Study of the reactions of abietic acid	
HELEN JACKSON WILLIAMS	<i>Mathematics</i>
A study of the applications of correlation theory to certain problems in education	
LENNA WOODS	<i>Zoology</i>

### WORCESTER CHAPTER

Four meetings were held during the year, 1916-17, each comprising a scientific address preceded by a business meeting.

On November 15, Mr. John E. Woodbury addressed the society on Focusing Appliances, Especially the Commercial Application of Range Finders to Cameras. On February 14, Dr. Warren K. Lewis of the Massachusetts Institute of Technology gave a very interesting presentation of Nitrogen Fixation a National Duty, to which the public was invited. At the meeting of April 25, Mr. Ancel St. John described the Determination of Crystal Structure by Means of the X-Rays. At this time the new members were initiated, one from the faculty, one graduate student, and seventeen seniors. At the open meeting of June 12, Dr. Arthur Gordon Webster of Clark University addressed a large audience on Physics in War.

### RECORD OF ELECTIONS

#### FACULTY

FRANCIS J. ADAMS *Instructor in Electrical Engineering*  
A Study in Speed Regulation of Induction Motors

#### GRADUATE

WARREN BAKER BURGESS *Electrical Engineering*  
A Study of Dielectrics

## UNDERGRADUATES

- ALFRED BREDENBERG, JR. *Electrical Engineering*  
Design, Construction and Test of Units for a 750 Mile Artificial Transmission Line
- ALFRED WEST FRANCIS *Chemistry*  
Catalytic Oxidation and Reduction of Iron Sulphate by Colloidal Platinum
- HEDGES SPELLMAN FREEMAN *Civil Engineering*  
Relations of the Motor Strengths and Concrete Strengths of Different Sands
- WALTER HENRY GIFFORD *Civil Engineering*  
Relations of the Mortar Strengths and Concrete Strengths of Different Sands
- FREDERIC LINCOLN HOLBROOK *Chemistry*  
A Study of the Oxidation of Naphthalene to Phthalic Acid
- ROGER CORNELL LAWRENCE *Electrical Engineering*  
A Projection Oscillagraph
- WILLIAM RIGA LYON *Electrical Engineering*
- WILLIAM LLOYD GARRISON MACKENZIE *Mechanical Engineering*  
Study of Earth Pressure and Retaining Walls
- RALPH N. S. MERRITT *Mechanical Engineering*  
An Investigation of the Machine Repair System in a Modern Manufacturing Plant
- JOSEPH EDWARD PADGETT *Mechanical Engineering*  
Test of a Haynes Light Six Engine
- EDGAR NEWTON PIKE *Electrical Engineering*
- CARL BICKNELL REED *Sanitary Engineering*  
The Comparative Sterilizing Power of Available Chlorine in Bleaching Powder and Chlorin  in Chlorine Water
- FRANCIS PELOUBET SWALLOW *Mechanical Engineering*  
Investigation of Tapping Speeds in Cold Punched Steel Nuts
- M. HAY TEAZE *Civil Engineering*  
Rating of Pitot Tubes in Moving Water
- SAMUEL HENRY THOMPSON *Civil Engineering*  
Design of a Highway Concrete Arch Bridge
- NORMAN LINCOLN TOWLE *Electrical Engineering*  
The Design of a Turbo-Alternator
- JOHN A. CARPENTER WARNER *Mechanical Engineering*  
Investigation of Tapping Speeds in Cold Punched Steel Nuts
- FARRINGTON DANIELS, Secretary



# CHAPTER OFFICERS LIST FURNISHED BY THE CORRESPONDING SECRETARIES OF THE CHAPTERS

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Illinois.....	Harry S. Grindley	L. H. Province.....	James Byrnie Shaw..	W. Coppersmith...	H. J. Van Cleave..
Case.....	D. T. Wilson.....	C. L. Eddy.....	W. Coppersmith...	Mason E. Hufford..	A. H. Holcomb...
Indiana.....	R. R. Ramsey.....	Will Scott.....	Mason E. Hufford..		C. E. Edmondson..
Missouri.....	C. H. Eckles.....	P. G. Doley.....	Leroy S. Palmer.....		W. A. Tarr.....
Colorado.....	Jay W. Woodrow...	W. C. Worcester...	W. C. Huntington...	W. C. Huntington..	Junius Henderson..
Northwestern...	S. I. Kornhauser...	William C. Bauer...	Lewis H. Weld.....	W. L. Woodburn...	Joseph E. Pogue...
Syracuse.....	L. H. Pennington	Louis Mitchell.....	George T. Hargitt...	George T. Hargitt...	B. W. Clark.....
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Washington State	G. B. Rigg.....	E. J. Saunders.....	H. L. Brakel.....	Miss E. I. Ratt.....	G. S. Wilson.....
Worcester.....	Arthur W. Ewell...	Francis W. Rous...	Francis J. Adam.....	Farrington Daniels	Morton Mazus.....
Purdue.....	Joseph C. Arthur...	William K. Hatt...	Nathaniel E. Loomis	Gilbert A. Young...	William H. Bates..
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Including Chapter Reports received up to July 1, 1918

## OFFICIAL ANNOUNCEMENTS

### QUARTER CENTURY RECORD AND HISTORY

According to the instructions given by the General Convention, a copy will be sent prepaid on receipt of \$2.50.

### SIGMA XI QUARTERLY

Title Page and Table of Contents for any Volume will be sent members or subscribers on request. A few extra copies of these volumes are to be had at the regular subscription price. Odd numbers will be sent members to fill gaps as long as the supply holds out.

### PRINTED BLANKS

The General Convention has instructed the Secretary to keep for chapters a supply of printed blanks as enumerated below. According to instructions these are to be forwarded to chapters under the following stipulations:

Membership Certificates, stamped with the great seal of the Society. In packages of fifty prepaid, on advance payment of \$2.50 for each package. Please specify carefully whether for regular or associate members.

Index Cards, on the condition that a duplicate set be sent for the general index of the Society maintained in the secretary's office. Gratis on demand.

Statistical Record Blanks, for submitting annual reports giving chapter officers, elections, and other statistical data. Gratis on demand.

Mailing Blanks, on which secretaries are requested to furnish once a year a correct list of mailing addresses of active members to be transmitted directly to the printer. Gratis on demand.

The mailing list should be sent to the General Secretary early in September and be valid for the academic year. The attention of secretaries is called to the fact that all changes of address or other correspondence concerning the QUARTERLY should be addressed to the General Secretary and not to the printing firm.